Predicting and Comparing the Stock Value of Chick-fil-A

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Abstract

This project focuses on estimating the stock value of Chick-fil-A as if it were a publicly traded company using a comparable analysis method or CAM. We begin by obtaining financial information from Chick-fil-A as well as the amount of locations there are chain-wide. Next we find two publicly traded fast food companies, one that is larger, and one that is smaller than Chick-fil-A and obtain the same information from them. The idea is that Chick-fil-A will lie between theses two companies and we can use the CAM to estimate their stock value. The CAM gives us a multiple of the valuation of Chick-fil-A in comparison to the companies we use and that information is what will be used to estimate the stock value. Lastly, we can compare Chick-fil-A with the larger company and then with the smaller company and average these two values which will give us a more accurate estimate.

1 Introduction and Motivation

As of 2020, Chick-fil-A has been in business for 74 years[4]. Opening in 1946, the restaurant chain was tiny, but by 2010 their annual sales were $3.58 billion[3]. This was after 64 years in operation. In only 9 years, Chick-fil-A managed to grow their annual sales to almost 4 times what it was in 2010, ending their annual sales at a record high of $12.78 billion in 2019[3]. How, in such a short time frame did a fast food company almost quadruple their annual sales? They must be efficient to pull something off of that magnitude. After learning this, we became curious and began researching Chick-fil-A for a project. Based on their efficiency, we wanted to know the stock value of the corporation. One way to determine a companies worth is based on their stock market value, but since Chick-fil-A is private, their value is unknown to the public. Thus, we set out to determine Chick-fil-A's hypothetical stock market value and compare their worth to some of the most valuable publicly traded fast food companies.

2 Background Literature and related Studies

Since Chick-fil-A is a private company, their true value is unknown to the public, unlike companies traded on the New York Stock Exchange or NYSE. However, there are certain ways to determine a private companies value using certain methodologies. One way is the use a Free Cash Flow analysis or FCF. Much the same way that stock value can determine the value or financial health of a publicly traded company, FCF works similarly for a private company[6]. It works by showing the cash that a company has available on hand. This reveals their financial health, which determines their true value.
Another way to determine the value of a company is to use the Comparable Analysis Method, or CAM. This actually works for a private or public company. It works by comparing ratios of multiple companies that are similar in size, ultimately allowing one to derive the target companies value using the required metrics[5].

3 Methods

3.1 Free Cash Flow Equation

The FCF equation is the basis of the FCF analysis and is defined as follows[6]:

$$FCF = EBIT(1-t) + D - CE - INWC$$

where:

- EBIT is the Earnings Before Interest and Taxes
- t is the tax rate
- D is the Depreciation
- CE is the Capital Expenditures
- INWC is the Increase in Net Working Capital

If one has this information, they can perform the FCF to help determine the value of a private company. Our original plan was to use this equation and base much of the analysis on the population that Chick-fil-A served throughout the country to aid in determining their value. We planned to use this equation in conjunction with financial information from a local store to determine its value. The local store would be used as a sample and would be based partly on the population of the city it served. From there, we planned to extrapolate out to the state level and then the chain-wide level to help determine the value of the company as a whole. However, Chick-fil-A was unwilling to share any financial information with us, forcing us to abandon this plan and take a new approach to determining Chick-fil-A's value. This led us to the Comparable Analysis Method or CAM.

3.2 Comparable Analysis Method

As stated previously, the CAM allows us to determine the value of a private or public company by comparing ratios and relationships of different metrics to ultimately derive the target companies[5]. This works by comparing companies that are similar in size and uses the similarities of various metrics to derive a companies value. Since the only information from Chick-fil-A we have left to work with are the annual sales, we believe this is the best alternative for making a prediction of their hypothetical stock value. There are numerous variables that the CAM uses which will be defined below.
There are two critical pieces of information that must be utilized for the CAM: market data and financial data. Market data is data that is issues by a trading venue or by the company itself and serves as an instrument for a trader to use for negotiating trading. Market data consists of the latest prices related to trade information and informs traders on whether or not the company their considering investing in is a good investment. Financial data on the other hand is nothing more than financial information about a company. This includes sales, earnings, etc. and also gives a trader good insight into the financial health of a company[5]. Before using the market data or financial data, it is necessary to define some terms that will be used later on and are defined as follows[5]:

- Market Capitalization or Market Cap: The total dollar value of a companies outstanding shares of stock, stock that is available for the shareholders to purchase. It is simply the total number of shares a company has in circulation multiplied by the current stock market value for each share.
- Total Enterprise Value (TEV): This is a valuation measurement used to determine the value of a company while considering its debt. The TEV is the value of the entire corporation and everything that it owns minus the companies debt.
- EBITDA: This is an acronym that stands for Earnings Before Interest Taxes Depreciation and Amortization. Simply put, this is a measure of profitability.
- EBIT: Earnings Before Interest and Taxes. This is also a measure of profitability.
- Earnings Per Share (EPS): The amount of money a company stands to profit for each share of stock sold.

Chick-fil-A will be compared to McDonald's and Yum! Brands, both of which are international companies. Yum! Brands is the parent company of KFC, Taco Bell, Pizza Hut, an Wing street Worldwide[12]. The reason these two companies were selected was because Chick-fil-A is almost in the middle of the difference in sales between McDonald's and Yum! Brands. In 2019, McDonald's annual sales was $21.08B[9], Chick-fil-A's was $12.78B[3], and Yum! Brands was $5.6B[11]. This gives us a good upper limit and a good lower limit as to what we predict the value could be.
All of the information to be used in the CAM is based off 2019 financial and market information including average prices throughout the year for stock price.

4 Data and Models

4.1 General Data

- Market Data - Billions of U.S. dollars except for stock price.

Company	**Stock Price**	**Market Cap**	**TEV**
McDonald's	$198.27	$124.75	$189.89
Yum! Brands	$104.22	$22.79	$42.1

- Financial Data - Billions of U.S. dollars except for EPS.

Company	**Sales**	**EBITDA**	**EBIT**	**EPS**
McDonald's	$21.08	$10.69	$9.07	$7.49
Yum! Brands	$5.59	$2.04	$1.93	$4.14

The above information is what is required to preform the CAM[9][11]. The two critical relationships we need to derive is that between market capitalization and total enterprise value which will be shown below.

4.2 General Relationships

- Market Capitalization Relationship

Company	**MC/Sales**	**MC/EBITDA**	**MC/EBIT**
McDonald's	5.92	11.67	13.76
Yum! Brands	4.07	11.16	11.81

- Total Enterprise Value Relationship

Company	**TEV/Sales**	**TEV/EBITDA**	**TEV/EBIT**	**P/E**
McDonald's	9.01	17.77	20.94	26.47
Yum! Brands	7.52	20.62	21.81	25.17

One should be able to observe the relationship involving market capitalization and total enterprise value and see that each relationship between McDonald's and Yum! Brands is fairly close. We have derived this relationship by first dividing market capitalization by

sales, EBITDA, and EBIT and then dividing the total enterprise value by sales, EBITDA, and EBIT. What we will do now is average each relationship and use those values to aid in finding the respective values for Chick-fil-A. Also observe the P/E ratio. This is the price earnings ratio between the stock price and earnings per share. This information will also be used later.

4.3 Average Relationships

- Average Market Capitalization Relationship

MC/Sales	**MC/EBITDA**	**MC/EBIT**
4.99	11.42	12.78

- Average Total Enterprise Value Relationship

TEV/Sales	**TEV/EBITDA**	**TEV/EBIT**	**P/E**
8.27	19.19	21.38	25.82

The above relationships are the average values between McDonald's and Yum! Brands. We first need to manipulate the average market capitalization relationship to first find the market capitalization. After finding that, we can then find the EBITDA and EBIT. The same is done for the total enterprise value relationship which also yields EBITDA and EBIT.
We actually end up with two relationships for EBITDA and EBIT. One is based on the market capitalization and the other is based on the total enterprise value. The two values for EBITDA and EBIT will be averaged and used for Chick-fil-A's data. These values are listed below:

- Market Capitalization EBITDA: 5.59
- Total Enterprise EBITDA: 5.5
- Average Value: 5.55

- Market Capitalization EBIT: 4.99
- Total Enterprise Value EBIT: 4.94
- Average Value: 4.97

4.4 Chick-fil-A Data

- Market Data - Billions of U.S. dollars except for stock price.

Company	**Stock Price**	**Market Cap**	**TEV**
Chick-fil-A		$63.83	$105.63

- Financial Data - Billions of U.S. dollars except for EPS.

Company	**Sales**	**EBITDA**	**EBIT**	**EPS**
Chick-fil-A	$12.78	$5.55	$4.97	

By now, we have almost everything we need to complete the CAM with the exception of the stock value and the EPS. Before we can obtain these values, we need to make a few more estimations which are discussed in detail in the next section.

4.5 Additional Estimations

Before we can actually get to our ultimate goal of predicting the hypothetical stock value, we need to make a couple of more estimations. These estimations are the net income for Chick-fil-A and the amount of shares available to stock holders.
Let us first discuss the net income. When observing the financial information of McDonald's and Yum! Brands, searching for a relationship, we discovered that there was a very close relationship between net income and EBIT for both companies. The information is listed below in billions of U.S. dollars[9][11]:

Company	**EBIT**	**Net Income**	**EBIT/Net Income**
McDonald's	$9.07	$6.03	1.5
Yum! Brands	$1.93	$1.29	1.49

After dividing the EBIT by the net income, we have a very close relationship between these two metrics as one can see. After averaging these two metrics, we get a value of 1.495. Next, we divide the calculated EBIT for Chick-fil-A by this value to give us an estimated net income of $3.31B.
Next, we need to discuss the amount of shares available to stock holders. Both McDonald's and Yum! Brands have shares of stock available to stockholders and we need to find a good number of shares of stock for Chick-fil-A. To do this, we simply take the average of the

amount shares between the two companies we are comparing Chick-fil-A to in order get an estimated amount of shares to use. In 2019, McDonald's had approximately 758 million shares[13] available to their shareholders while Yum! Brands had 313 million shares[11] available to their shareholders the same year. After taking the average of these two values, we calculate approximately 535.5 million shares that Chick-fil-A would have available to their shareholders for the 2019 year.

5 Results

We can now use the net income, amount of shares available to stock holders, and EPS to find the hypothetical stock value for Chick-fil-A[7][1]:

$$EPS = \frac{NetIncome}{Shares} \tag{1}$$

$$= \frac{3,331,000,000}{535,500,000} \tag{2}$$

$$= \$6.22 \tag{3}$$

$$StockValue = EPS(P/E) \tag{4}$$

$$= \$6.22(25.82) \tag{5}$$

$$= \$160.60 \tag{6}$$

6 Conclusion

We calculated that Chick-fil-A would have an estimated stock value of $160.60. for 2019. That is about 19% cheaper than McDonald's average stock value for 2019 of $198.27[9] and about 35% more valuable than Yum! Brands average stock value for 2019 of $104.22[11]. For additional perspective, Starbucks had annual sales of $26.5B[10] in 2019. Sales that exceeds McDonald's by almost the entire annual sales amount of Yum! Brands for 2019, with an average stock value of $81.44[10]. For additional perspective, Apple had an average stock value of $208.26[8] in 2019.

[5] [9] [13] [11] [3] [4] [2] [8] [10] [7] [6] [12]

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